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LITERATURE ABSTRACTS

MEDICAL

ENGINEERING

CHEMICAL

TOXICOLOGICAL

LEGAL

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281 Fundamentals of Silicosis Research. K. Thomas.
Schweiz. med. Wochschr. 94, 213-217 (Feb. 15, 1964).

The author discusses the conditions which have a bearing on the development, in experimental intraperitoneal tests, of the stratified hyaline granuloma which is characteristic of silicosis. Special attention is drawn to the granule size and the surface texture of the powders; the crystalline texture of the SiO_2 material, on the other hand, is not particularly significant. The recently discovered high-pressure and high-temperature modified materials, called "Coesit" and "Stischowit" will probably provide further insight into the primary mechanism of the tissue-damaging reaction of the SiO_2 particle after phagocytosis. These investigations fall within a hitherto neglected sphere of biological chemistry, known as solid-body biology. In this field, the relation of the texture of solid surfaces to certain metabolic reactions is studied. -- APCA Absts.

282 Experimental Tricalcium Phosphate Crystallosis. H.A. Reimann, Thelma Ducanes, and R. Gatter. Arch. Environmental Health 10, 33-36 (Jan. 1965).

Crystals smaller than 5 microns of tricalcium phosphate, a component of some dentifrices, entered the intestinal mucosa of rats after ingestion and their lungs after intracheal injection. Intraperitoneal injection caused local microscopic foreign-body granulomas. The lungs and the gut served as portals of entry for the hematogenous and lymphogenous systemic dispersion of crystals. They were deposited in normal appearing tissues, or caused areas of mild or severe inflammation and granulomas. -- Authors' summary

283 Lung Structure—Relation to Response to Particulate. P.P. Yevich.
Arch. Environmental Health 10, 37-43 (Jan. 1965).

One of the main anatomical differences between the lung of the dog and rat is in the terminal portions of the bronchial tree. Exposure of dogs and rats for long periods to oil mist and calcined diatomaceous earth revealed that the histopathologic response in the dog was limited to accumulation of particulates and macrophages around the respiratory bronchioles; the alveolar spaces of the air sacs were free of any changes. In the rat the histopathologic changes showed accumulation of particulate-laden macrophages in the alveolar spaces and around the blood vessels. Phagocytosis of the particulates by macrophages was seen in both species of animals. Accumulation sites differed between the rat and dog. This probably was due to lack of lymphatics and a long respiratory bronchiole in the terminal portions of the bronchial tree of the rat lung. Bronchoconstriction in the dog may be an important factor for the accumulation of particulates in this area. That the human lung accumulates particulates around the respiratory bronchioles has been shown by numerous researchers. -- Author's summary

284 Asbestosis and Lung Cancer. W.J. Williams.
Arch. Environmental Health 10, 44-45 (Jan. 1965).

This report records 52 American cases of asbestosis among whom there were 10 patients with malignant tumors, an incidence similar to that reported in Britain. There are 17 references.
-- Author's conclusion

285 Lung Function Changes in Talc Pneumoconiosis. M. Kleinfeld, et al.
J. Occ. Med. 7, 12-17 (Jan. 1965).

Pulmonary function tests were performed in 16 workers who were engaged in the milling of talc for more than 10 years and had clinical and roentgenographic findings consistent with talc pneumoconiosis. In 14 of 16 the pneumoconiosis was symptomatic. Dyspnea was the predominant symptom. Cough was present but was not consistent. The mean duration of exposure for the group was 20.4 years, with a range of 13-26, and the mean weighted average exposure was 68.0 mppcf. The latter exceeds the present threshold of 20 mppcf as recommended by the American Conference of Governmental Industrial Hygienists. The changes in pulmonary function indicated that there was an impairment in ventilatory function and diffusion capacity ($D_{L_{CO}}$) in a significant number of individuals. The changes in ventilatory function were primarily of a restrictive type, although in some instances an obstructive component was also present. Some correlation was found between $D_{L_{CO}}$ and clubbing and pulmonary infiltration. The total lung capacity showed a correlation with clubbing only. There are 11 references. -- Authors' summary